

New *Gilletinus* Boucomont, 1932 (Coleoptera: Geotrupidae: Bolboceratinae) from Misool, with the key to known species

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Abstract: A new species of genus *Gilletinus* from Misool Island, East Indonesia, is described. An annotated species list of the genus *Gilletinus* is presented. An updated identification key to *Gilletinus* species is provided.

Key words: Coleoptera, Geotrupidae, Bolboceratinae, *Gilletinus*, key to species, New Guinea, Raja Ampat, Australia.

Introduction

Gilletinus Boucomont, 1932 is a small genus with 12 recent species (including a new species described herein). The distribution of this genus is limited to North-East of the Australian mainland, New Guinea and satellite islands (Howden, Cooper 1977; Howden 1990). One species is shared between the Australian and Papuan faunas, all other taxa have much more restricted distribution (see annotated list of *Gilletinus* species below).

According to a recent classification of scarabaeoid beetles (Smith 2006), the genus *Gilletinus* belongs to the tribe Gilletinini of Bolboceratinae Geotrupidae. The main characters distinguishing *Gilletinus* from related genera are (Howden 1990): length of scutellum, always distinctly greater than their basal width; elytral disc with striae at least half as wide as adjacent intervals, (Howden, Cooper 1977): elytral intervals distinctly convex. Only *Stenaspidius* Westwood, 1848 share these characters with *Gilletinus*, however, according to Howden & Cooper (1977), *Stenaspidius* can be distinguished by having 5 elytral striae (7 in *Gilletinus*) and a carinate base of elytra (simple in *Gilletinus*).

Little is known of the ecology and biology of *Gilletinus* species. Australian species seem to favour small grassy areas either in or close to forests (Howden 1992). Habitat types range from wet coastal rainforests to moderately dry, open *Eucalyptus* forest. In New Guinea, species of *Gilletinus* inhabit moist rainforests. It is noted, that adults of Australian species of *Gilletinus* fly close to the ground during the day (Howden et al.

2007). Diurnal Australian species of *Gilletinus* can be recognized by smaller body size (5-10 mm long), and partly to uniformly black and deeply striate elytra. Nocturnal species are variable in size (5-30 mm long), coloured brown to dark brown and often bearing shallow elytral striae (Howden et al. 2007). Due to the lack of comparative material it is impossible to compile similar data for New Guinean representatives of the genus.

During our studies, the single specimen of *G. kristinae* sp. nov. was collected in a Malaise trap set near the large fallen and partly rotten tree on the stony riverbank in lowland pristine dipterocarp rainforest on Misool Island, Raja Ampat. No data is available on the flight behavior or on the diel activity of the new species.

Description of new species

***Gilletinus kristinae* sp. nov.** (Plate 38, fig. 1, plate 39, fig. 1)

Holotype ♀ Naturkundemuseum Erfurt: INDONESIA E, Prov. Raja Ampat, Misool SW, distr. Misool Utara, Aduwey (Adua) vill. ~4 km NNW, valley of River Hakau, 01°58'46"S, 129°54'37"E, 25-31.03.2009, primeval lowland forest, Malaise trap near fallen rotten tree, leg. D.Telnov.

Derivatio nominis: Patronymic. With love and pleasure I am dedicating this species to my wife Kristine Greķe (Rīga, Latvia), a well-known malacologist and my dear friend, who accompanied me during the expedition to Misool and Central Moluccas in spring of 2009.



Measurements, holotype: Total body length 7.5 mm. Head 1.65 mm long, maximum width across genae 2.11 mm, pronotum at midline 2.85 mm long, maximum width at basal third 4.2 mm, elytra 3.0 mm long, maximum combined width before the middle 4.14 mm.

Colouration: Head black, with slightly lighter reddish-black clypeus and orange antennae. Pronotum red, scutellum blackish-red, anterior margin on place of insertion of head is narrowly black. Elytra in good light black in basal part, dark red on striae and black to on intervals. By insufficient light whole elytra looks uniformly black. Legs in good light reddish-brown, by insufficient - pale brown, with tarsi being indistinctly lighter. Underside orange to orange-brown.

Description: Head is slightly impressed on frons, dull. Labrum 2.4 times wider than long. Anterior margin truncate, surface at middle with transverse and medio-posteriorly arcuate carina. Clypeus with anterior transverse carina almost not indicated. Posterior transverse carina strongly elevated, highest on each side at lateral third, binodose, impressed antero-medially, laterally sloping steeply downward on each side to lateral margin. Vertex at middle with low, slightly medio-posteriorly arcuate transverse carina, carina not contiguous with other very feeble longitudinal carina on each side. Gena approximately as wide as long, with outer margin broadly rounded and coarsely and irregularly punctate surface. Eyes large, finely faceted, deeply emarginated on anterior and shallowly - on posterior margin. Pronotum dorsally globose, glossy and shiny. Lateral foveae absent. Punctures inconspicuous, laterally denser (intervals about 2-4 times of puncture size), on disc much sparser (intervals 3-10 times of punctures size). Group of intermixed large and small punctures laterally before posterior angles. Scutellum strongly impressed at middle, coarsely punctate, not raising over the elytral surface. Each side with a row of fine setae. Elytra dorsally globose and shiny. Elytral striae deep, each stria with a row of large, transverse and somewhat ill defined punctures. Interstitial intervals distinctly convex. 3rd interval is more strongly elevated, than other intervals. Sutural margin strongly raised over elytral surface, except area around scutellum, where sutural margins are flat. Intervals rounded on sides. Basal width of interval almost equal to width of adjacent stria; toward apices intervals becoming narrower than adjacent striae. On lateral margin of each elytron with separate 12-15 long erect setae. Hind wings fully developed. Mesosternum

anteriorly between meso-coxae with impressed midline, flattened. Anterior margin of metasternum truncate and binodose. Metasternum glabrous and inpunctate. Ventral surface of meso- and metafemora with numerous large shallow, setulate punctures. Legs: Left protibia with 9 teeth on outer margin, right protibia with an additional minute basal denticle. Metatibiae with both subapical and apical carinae deeply emarginated.

Dimorphism: The male is currently unknown.

Distribution: Only known from the locus typicus, southern coast of Misool, Raja Ampat Archipelago, eastern Indonesia, ~50 m a.s.l. (plate 39, fig. 2). This is the westernmost record of the genus *Gilletinus*.

Diagnose: *Gilletinus kristinae* sp. nov. is easily diagnosed by the dorsal body colouration (especially the almost completely bloody-red pronotum, with only a small black area medially on the anterior margin near the insertion of head). The new species is distinguished from *G. bipagus* by the sutural and 3rd elytral interstitial intervals raised over the surface of elytra, but posterior transverse clypeal carina is not strongly elevated and binodose. *G. acutus* which also has the 3rd elytral interstitial interval elevated, is distinguished from the new species by the penultimate transverse carina on outer edge of metatibia not emarginate and the posterior transverse clypeal carina not elevated and binodose. The penultimate transverse carina on outer edge of metatibia is distinctly emarginate in *G. multicosatus*, but the 3rd interstitial interval is not elevated over elytral surface in this species.

Annotated list of *Gilletinus* species

Species in the list are arranged alphabetically, since no phylogenetic arrangement has been made.

Geotrupidae Latreille, 1802: 142

Bolboceratinae Mulsant, 1842: 347

Gilletinini Nikolajev, 1990: 99

Gilletinus Boucomont, 1932: 264

Type species: *Bolboceras multicosatus* Lansberge, 1885, by original designation.

Gilletinus acutus Howden, 1989: 264

Distribution: Papua New Guinea (Northern Province).

Note: Known only from the holotype.

Gilletinus bipagus Howden, 1989: 271

Distribution: Australia (Queensland), Papua New Guinea (Western Province).



Gilletinus corrugatus (Lea, 1924: 285)
Distribution: Australia (Queensland).

Gilletinus porosus Howden, 1992: 701
Distribution: Australia (Queensland).

Gilletinus flavocastaneus (Lea, 1924: 286), as variety of
'*Bolboceras corrugatum*'.
Distribution: Australia (New South Wales & Queensland).

Gilletinus rabaulensis Howden, 1989: 266
Distribution: Papua New Guinea (East New Britain
Province, New Britain).
Note: Known only from the holotype.

Gilletinus kristinae sp. nov.
Distribution: E Indonesia (Raja Ampat Archipelago:
Misool).
Note: Known only from the holotype.

Gilletinus rugosifrons Howden, 1989: 270
Distribution: Papua New Guinea (National Capital
Province).
Note: Known only from the holotype.

Gilletinus multicostatus (Lansberge, 1885: 395), as
Bolboceras.
Distribution: Papua New Guinea (Western Province, Fly
river).
Note: Known only from the holotype.

Gilletinus variegatus Howden, 1989: 267
Distribution: Papua New Guinea (Madang Province).
Note: Known only from the holotype.

Gilletinus occidentalis Howden, 1989: 268
Distribution: E Indonesia (West Papua Province, NW
Bird's Head Peninsula).
Note: Known only from the holotype.

Gilletinus williamsi Howden, 1992: 702
Distribution: Australia (New South Wales).

Identification key to species of *Gilletinus*

This key is adapted from Howden (1990; 1992), with the addition of the new species, and combining
keys to the Australian and New Guinean species.

- 1 Pronotum without punctate longitudinal impression on disc 2
- Pronotum with a punctate longitudinal impression on disc *G. williamsi*
- 2 Clypeus with only posterior carina developed, lacking or almost lacking anterior carina 3
- Clypeus with both anterior and posterior carinae present 5
- 3 Elytra with 3rd interstitial interval elevated over elytral surface 4
- Elytra with 3rd interstitial interval not elevated over elytral surface. Penultimate transverse carina on outer edge of
metatibia distinctly bilobate *G. multicostatus*
- 4 Penultimate transverse carina on outer edge of metatibia distinctly bilobate. Pronotum completely red. Clypeus
with posterior transverse carina strongly elevated and binodose *G. kristinae*
- Penultimate transverse carina on outer edge of metatibia not bilobate. Pronotum on anterior and posterior margins
as also scutellum black. Clypeus with posterior transverse carina not elevated non binodose *G. acutus*
- 5 Clypeus with posterior carina V-shaped anteriorly 6
- Posterior carina of clypeus not V-shaped 8
- 6 Dorsal colouration of body uniformly black or black-brown (in teneral specimens) 7
- Dorsal colouration of body brown, with parts of head, base of pronotum, base of elytra and scutellum often being
black-brown to black *G. flavocastaneus*
- 7 Carina on vertex slightly bituberculate. Elytral disc with intervals straight *G. corrugatus*
- Carina on vertex not tuberculate. Elytral disc with intervals appearing slightly wavy or crenulated by striae
punctures *G. porosus*
- 8 Clypeus with posterior carina angulate anterioro-medially, apex of this angle frequently connected with anterior
carina 9
- Clypeus with posterior carina straight or arcuate, not angulate anteriorly and not connected medially with anterior
carina 10



9 Clypeus with small, elevated, median tubercle. Anterior carina arcuate on each side of median junction with median tubercle. Posterior carina feebly arcuate near junction with tubercle. Dorsum of clypeus covered with scattered punctures, shiny *G. bipagus*
 - Clypeus with anterior and posterior carinae not merging to form base of distinct median tubercle. Both carinae feebly angulate medially, not arcuate. Dorsum of clypeus strongly rugose, not shiny *G. rugosifrons*
 10 Clypeus with posterior carina not distinctly elevated or binodose in median three-fourths. Anterior pronotal marginal bead moderately expanded posteriorly to vertex 11
 - Clypeus with posterior carina distinctly elevated and binodose in median three-fourths. Anterior pronotal marginal bead strongly expanded posteriorly to vertex *G. rabaulensis*
 11 Distance from anterior carina to posterior carina of clypeus distinctly shorter than maximum length of gena. Dorsum of clypeus between carinae densely punctate than frons, punctures on frons are larger *G. variegatus*
 - Distance from anterior carina to posterior carina of clypeus equal or almost equal to length of gena. Dorsum of clypeus between carinae with punctures similar in size and density to those on frons *G. occidentalis*

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Plate 38

TELNOV D.: New *Gilletinus* Boucomont, 1932 (Coleoptera: Geotrupidae: Bolboceratinae) from Misool, with ...



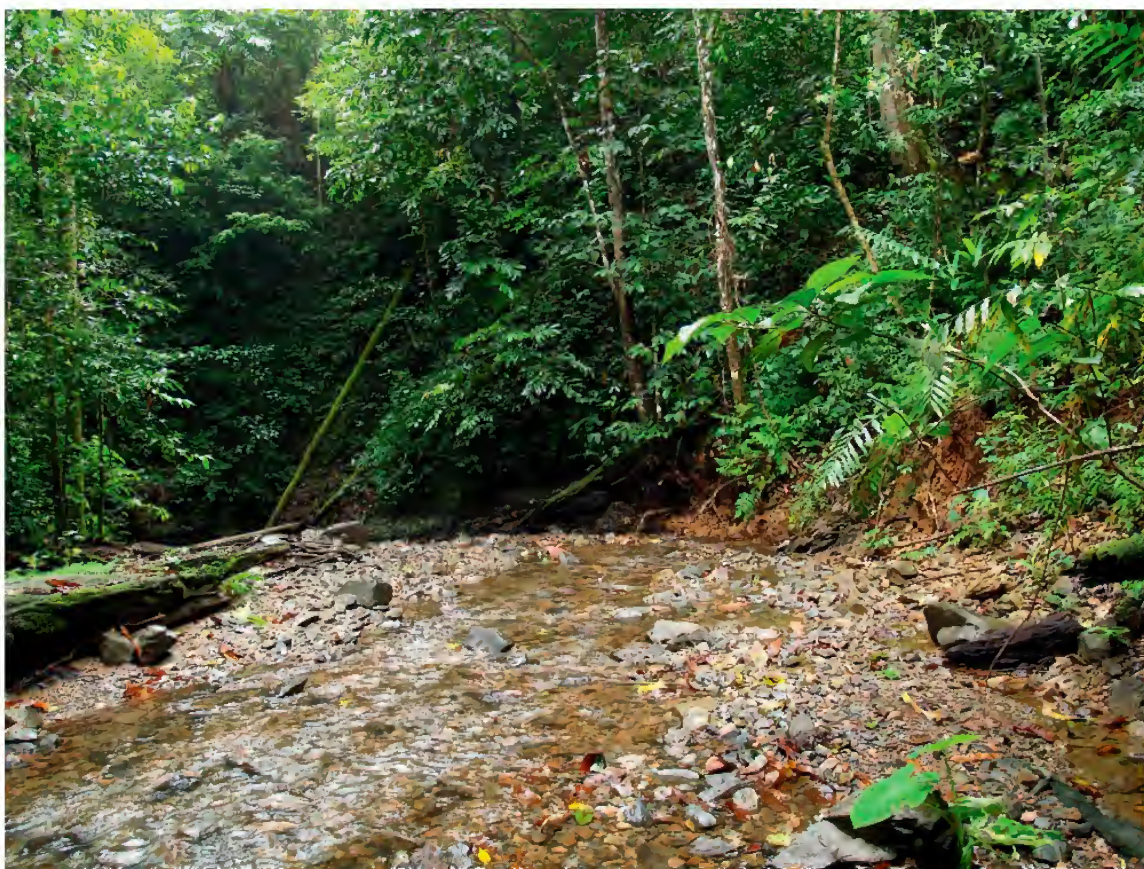
Figure 1. *Gilletinus kristinae* sp. nov., holotype ♀ (dorsal view).

Plate 39

TELNOV D.: New *Gilletinus* Boucomont, 1932 (Coleoptera: Geotrupidae: Bolboceratinae) from Misool, with ...



1



2

Figures 1-2. *Gilletinus kristinae* sp. nov.

1: Head, holotype ♀ (dorsal view); 2: Primeval lowland dipterocarp rainforest in valley of Hakau river in southern Misool, at the locus typicus of *G. kristinae* (photo: M.Kalniņš, 2009).